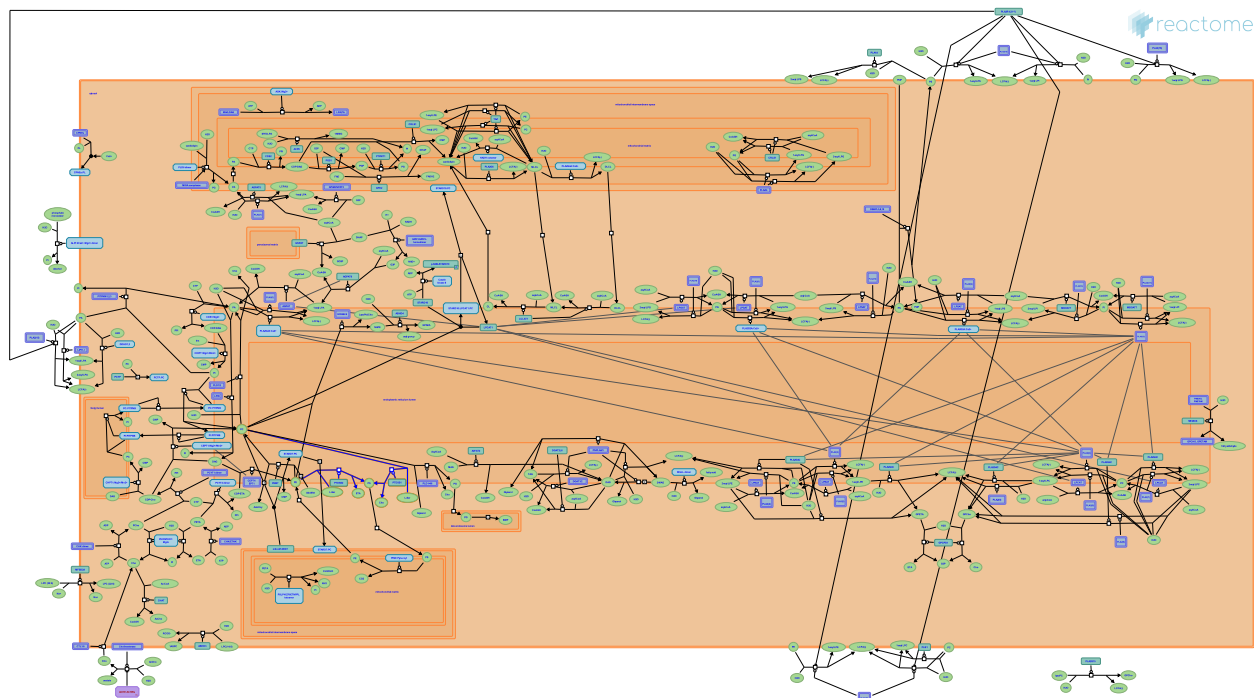


Synthesis of PS



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This is just an excerpt of a full-length report for this pathway. To access the complete report, please download it at the [Reactome Textbook](https://reactome.org/textbook).

03/05/2024

Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

Literature references

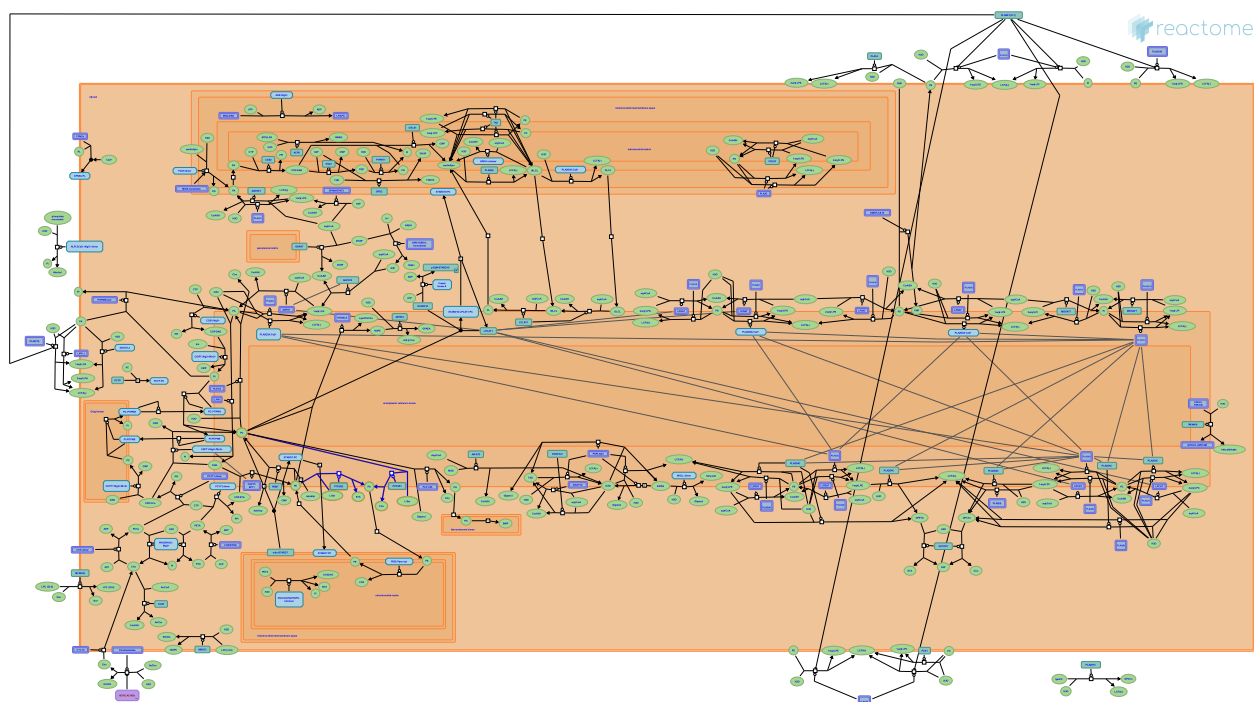
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Reactome database release: 88

This document contains 1 pathway and 2 reactions ([see Table of Contents](#))

Synthesis of PS [↗](#)

Stable identifier: R-HSA-1483101



Phosphatidylserine (PS) is synthesized by facilitating the exchange of L-Serine (L-Ser) with the choline (Cho) head group in phosphatidylcholine (PC) and with the ethanolamine (ETA) head group in phosphatidylethanolamine (PE) (Saito et al. 1998, Tomohiro et al. 2009).

Literature references

Saito, K., Kuge, O., Nishijima, M. (1998). Genetic evidence that phosphatidylserine synthase II catalyzes the conversion of phosphatidylethanolamine to phosphatidylserine in Chinese hamster ovary cells. *J Biol Chem*, 273, 17199-205. [↗](#)

Kawabe, Y., Kitada, S., Tomohiro, S., Kuge, O., Kawaguti, A. (2009). Purification and characterization of human phosphatidylserine synthases 1 and 2. *Biochem J*, 418, 421-9. [↗](#)

Editions

2011-08-12	Edited	Williams, MG.
2011-09-14	Authored	Williams, MG.
2012-05-14	Reviewed	Wakelam, M.

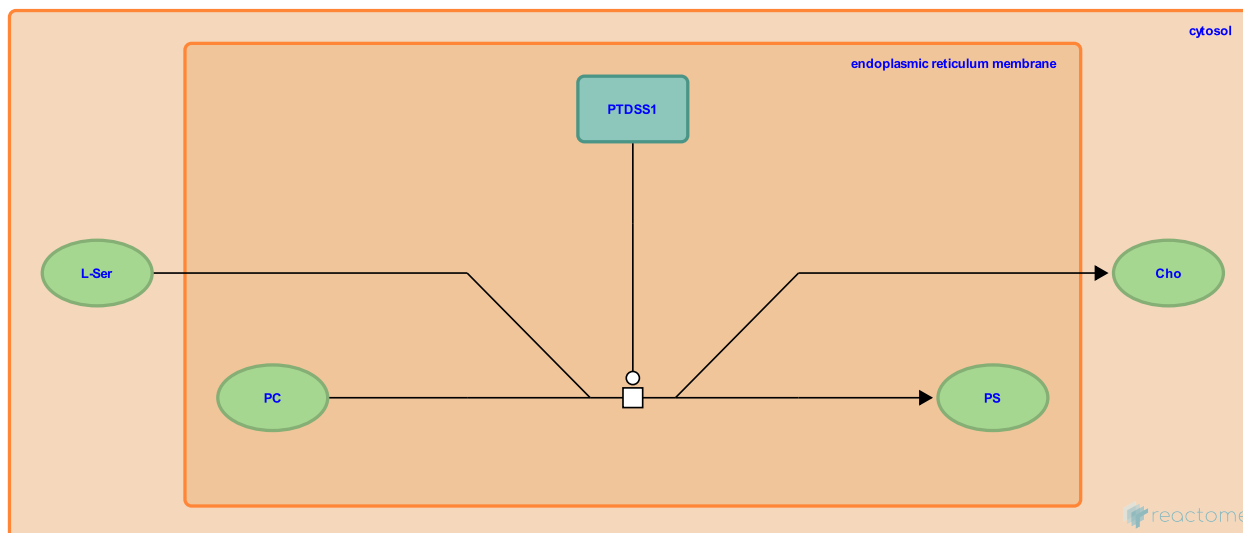
PC is converted to PS by PTDSS1 ↗

Location: [Synthesis of PS](#)

Stable identifier: R-HSA-1483186

Type: transition

Compartments: endoplasmic reticulum membrane, cytosol



At the endoplasmic reticulum (ER) membrane, phosphatidylserine synthase 1 (PTDSS1) converts phosphatidylcholine (PC) into phosphatidylserine (PS) by facilitating the exchange of L-Serine (L-Ser) with the choline (Cho) head group (Saito et al. 1998, Tomohiro et al. 2009).

Literature references

Saito, K., Kuge, O., Nishijima, M. (1998). Genetic evidence that phosphatidylserine synthase II catalyzes the conversion of phosphatidylethanolamine to phosphatidylserine in Chinese hamster ovary cells. *J Biol Chem*, 273, 17199-205. ↗

Kawabe, Y., Kitada, S., Tomohiro, S., Kuge, O., Kawaguti, A. (2009). Purification and characterization of human phosphatidylserine synthases 1 and 2. *Biochem J*, 418, 421-9. ↗

Editions

2011-08-12	Edited	Williams, MG.
2011-09-14	Authored	Williams, MG.

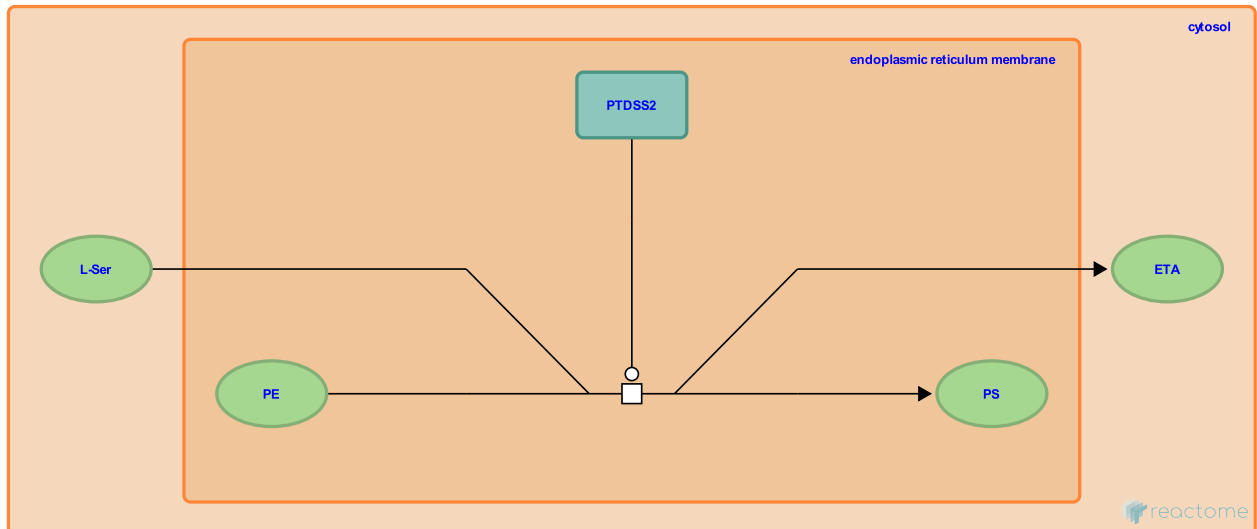
PE is converted to PS by PTDSS2 ↗

Location: [Synthesis of PS](#)

Stable identifier: R-HSA-1483089

Type: transition

Compartments: endoplasmic reticulum membrane, cytosol



At the endoplasmic reticulum (ER) membrane, phosphatidylserine synthase 2 (PTDSS2) converts phosphatidylethanolamine (PE) into phosphatidylserine (PS) by facilitating the exchange of L-Serine (L-Ser) with the ethanolamine (ETA) head group (Saito et al. 1998, Tomohiro et al. 2009).

Literature references

Saito, K., Kuge, O., Nishijima, M. (1998). Genetic evidence that phosphatidylserine synthase II catalyzes the conversion of phosphatidylethanolamine to phosphatidylserine in Chinese hamster ovary cells. *J Biol Chem*, 273, 17199-205. ↗

Kawabe, Y., Kitada, S., Tomohiro, S., Kuge, O., Kawaguti, A. (2009). Purification and characterization of human phosphatidylserine synthases 1 and 2. *Biochem J*, 418, 421-9. ↗

Editions

2011-08-12	Edited	Williams, MG.
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